BDCP
BAY DELTA CONSERVATION PLAN

BDCP Roll-Up Concepts

October 25, 2011

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CONCEPT OF ROLL-UP

- Integration of effects analysis for each covered fish species to produce final conclusions
- Quantitative models that include all BDCP action are not currently available
- Therefore, roll-up will use a qualitative scoring based on
  - Stressor importance
  - Overlap of stressors and life stages
  - Amount of change in performance provided by BDCP actions
- Techniques still being developed

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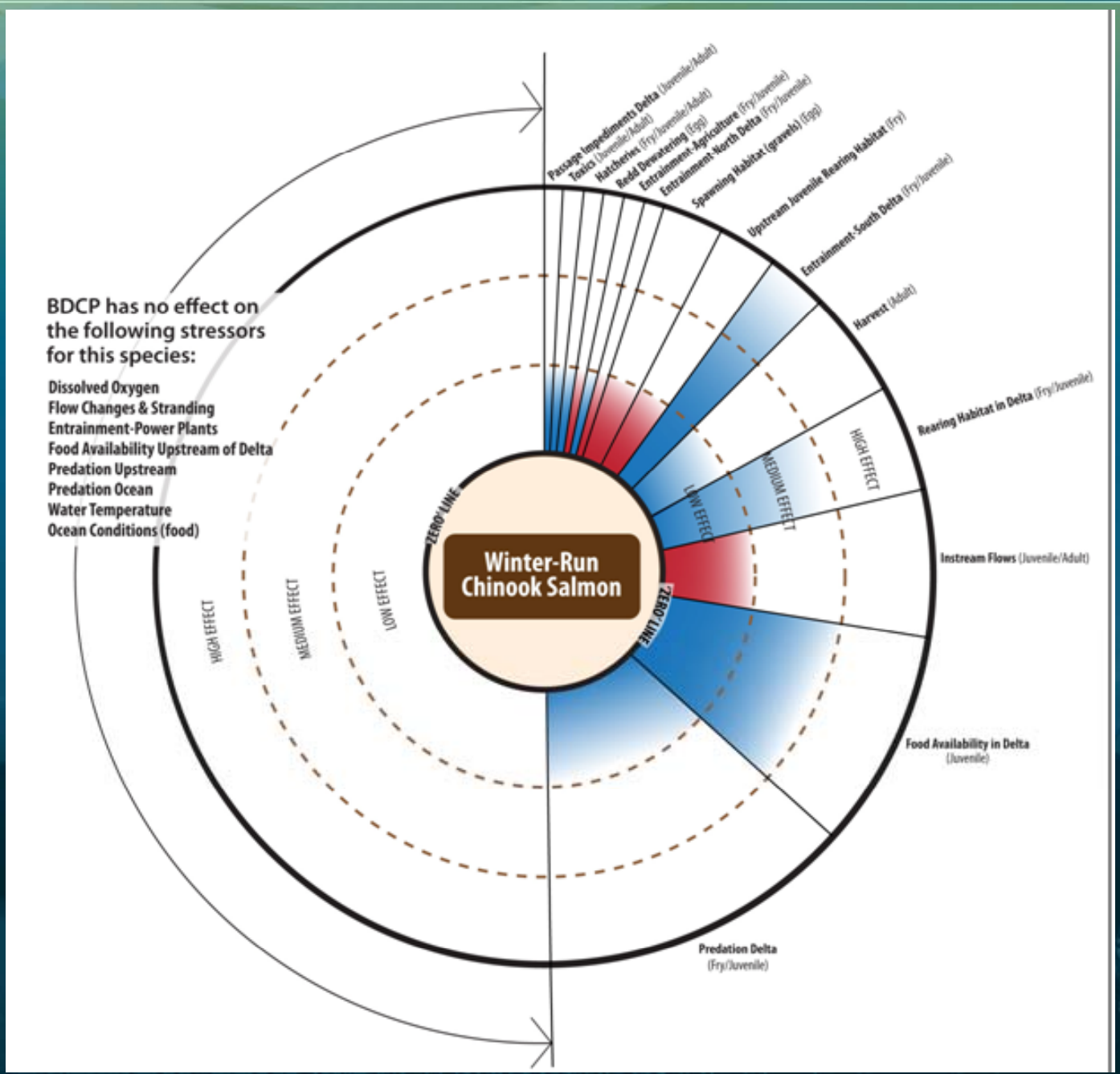
Existing Roll-Up Concept



LEGEND
- Positive effect
- Negative effect

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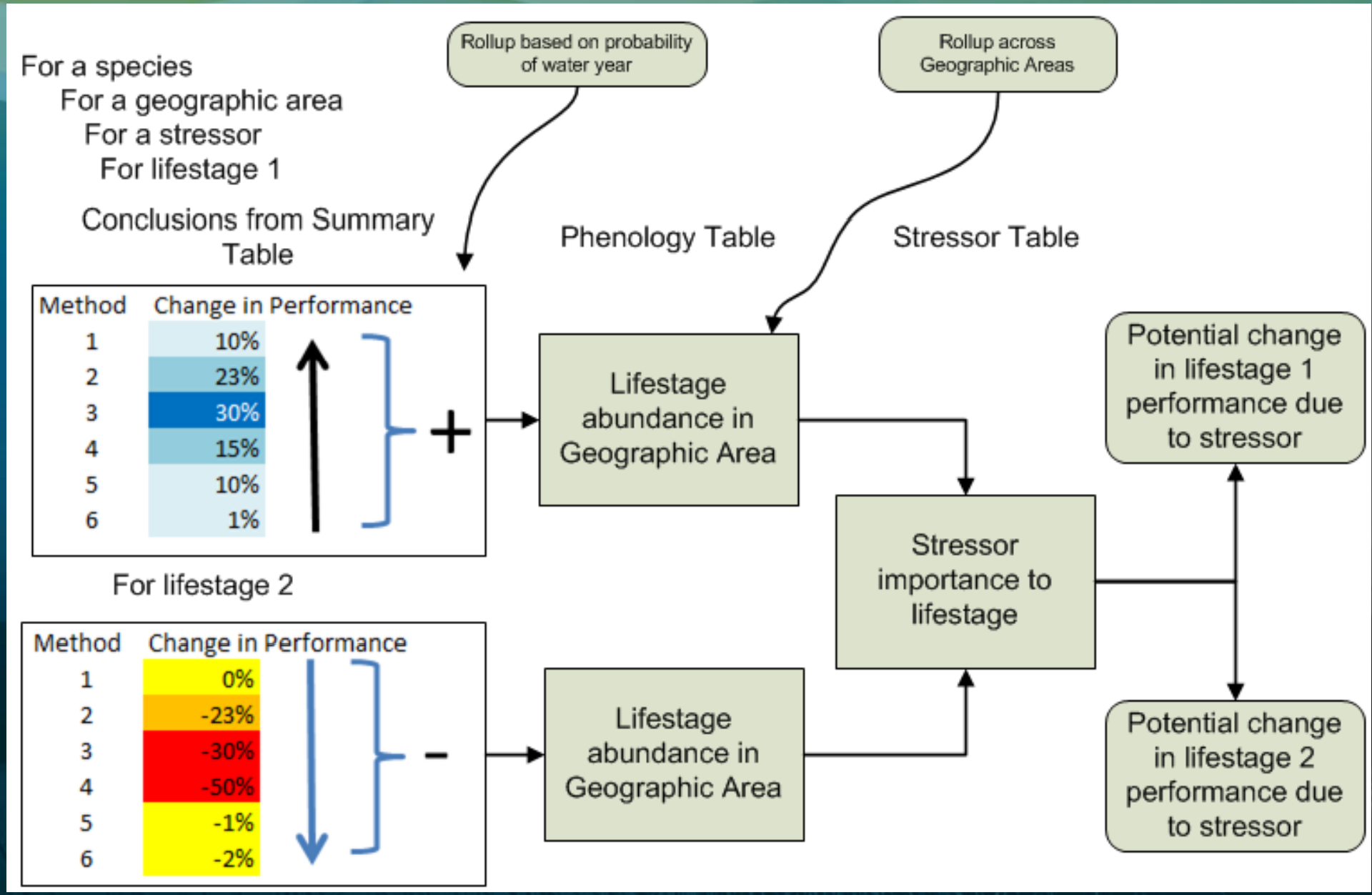
Sample Procedure for Roll-Up (Preliminary)



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Results Summary Table (Example)

A. North Delta, South Delta, and East Delta

Species	Life Stage	North Delta						South Delta					
		All	Wet	Above Normal	Below Normal	Dry	Critical	All	Wet	Above Normal	Below Normal	Dry	Critical
Steelhead	Egg/Embryo	These life stages are not present in the Delta area.											
	Fry												
	Juvenile												
	Adult	Attraction flows are shown in Table C.1-4.											
Winter-run Chinook salmon	Egg/Embryo	This life stage is not present in the Delta area.											
	Fry												
	Juvenile											1	
	Adult	Attraction flows are shown in Table C.1-4.						This life stage is not present in the South Delta area.					
Spring-run Chinook salmon	Egg/Embryo	This life stage is not present in the Delta area.											
	Fry												
	Juvenile										1	1	
	Adult	Attraction flows are shown in Table C.1-4.						This life stage is not present in the South Delta area.					
Fall–run Chinook salmon	Egg/Embryo	This life stage is not present in the Delta area.											
	Fry												
	Juvenile											1	
	Adult	Attraction flows are shown in Table C.1-4.											
Late fall-run Chinook salmon	Egg/Embryo	These life stages are not present in the Delta area.											
	Fry												
	Juvenile												
	Adult	Attraction flows are shown in Table C.1-4.						This life stage is not present in the South Delta area.					
Delta smelt	Eggs	This life stage is not present in the South Delta area.											
	Larva										1	1	
	Juvenile									1	1	1	
	Adult												
Longfin smelt	Eggs	This life stage is not present in the South Delta area.											
	Larva												
	Juvenile											1	
	Adult											1	
Sacramento splittail	Egg/Embryo	These life stages are not present in the South Delta area.											
	Fry												
	Juvenile										1	1	1
	Adult												

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Stressor Table: Importance to Species Performance

Delta Smelt

		Score: 1–4 (most important)					
		Eggs deposited to hatching	Hatch to fully developed fins and air bladder	Actively feeding and growing	Sexually mature and maturing fish headed generally upstream	Rank of summed scores across rows	
						Stressor	
Stressors	**Definition of Stressor**	**Eggs**	**Larvae**	**Juveniles**	**Adults**	**Rank**	**Rationale**
North Delta intakes entrainment	Entrainment and impingement of fish at proposed North Delta intake						
South Delta entrainment	Entrainment at existing South Delta intake						
North Bay aqueduct entrainment	Entrainment at North Bay Aqueduct						
Diversions (smaller diversions)	Entrainment in agricultural and small diversions throughout the Delta						
Habitat loss	Physical loss of habitat due to diking, filling or draining						
Transport flow	Flows that are moving fish through the BDCP regions at any life stage						
LSZ	Low Salinity Zone defined by position of X2						
Temperature	Water temperature (^{o}C)						
Turbidity	Water clarity (NTUs)						
	Life Stage Rank						

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Phenology Table

Delta Smelt

Life Stage	July	August	September	October	November	December	January	February	March	April	May	June
Subregion: Yolo Bypass												
Eggs							●	●	●	●	●	
Larvae							●	●	●	●	●	•
Juveniles	●	●	●								●	●
Adults/Spawners				●	●	●	●	•	●	●	●	•
Subregion: Cache Slough												
Eggs							●	●	●	●	●	•
Larvae							●	●	●	●	●	
Juveniles	●	●	●							●	●	●
Adults/Spawners	●	●	●	●	●	●	●	●	●	●	●	●
Subregion: North Delta												
Eggs								•	●	●	●	•
Larvae								•	●	●	●	•
Juveniles												
Adults			●	●	●	●	●	●	●	●	●	●
Subregion: Western Delta												
Eggs												
Larvae									•	•	•	•
Juveniles	•	•	●	●	●	•					•	•
Adults/Spawners	•	•	●	●	●	•	●	●	●	●	●	•

Life Stage	July	August	September	October	November	December	January	February	March	April	May	June
Subregion: Suisun Bay												
Eggs												
Larvae							●	●	●	●	●	●
Juveniles	•	●	●	●	●	•					•	•
Adults/Spawners	•	●	●	●	●	•	●	●	●	●	•	•
Subregion: Suisun Marsh												
Eggs								•	●	●	●	•
Larvae								•	●	●	●	•
Juveniles	●	●	●	●							●	●
Adults/Spawners			●	●	●	●	●	●	●	●	●	•
Subregion: East Delta												
Eggs								•	●	●	●	•
Larvae								•	●	●	●	•
Juveniles												
Adults							●	●	●	●	●	●
Subregion: South Delta												
Eggs								•	●	●	●	•
Larvae								•	●	●	●	•
Juveniles	•	●	●	●	●	•					•	•
Adults/Spawners	•	●	●	●	●	•	●	•	●	●	●	•

Key:	Abundant	Rare
	Moderate	Not Present

Note: The size of the dots portrays the relative abundance of life stages in subregion in the month. The color coding for each life stage within each subregion indicates the overall abundance of the life stage relative to other subregions.

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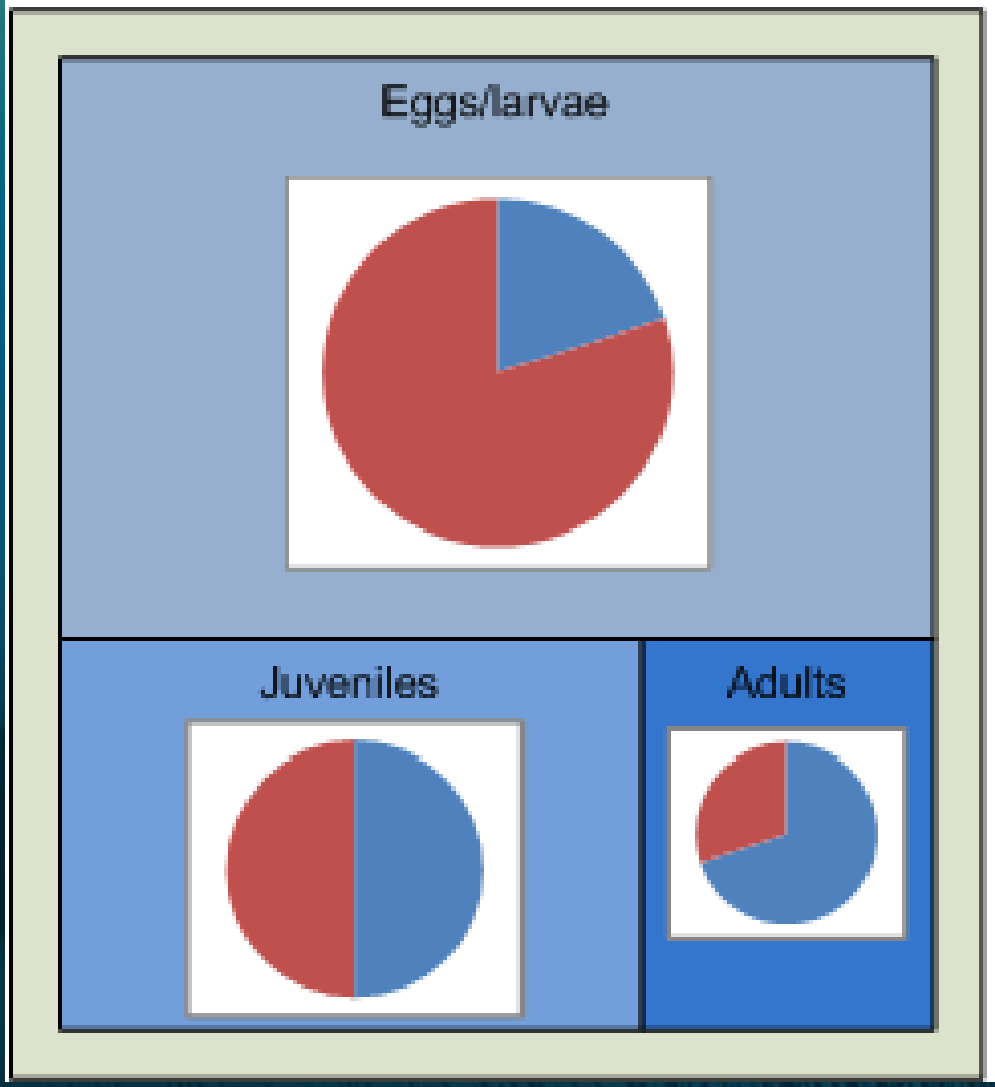
Roll-Up Summary Concept (Hypothetical)

Species: Delta Smelt
Stressor: Entrainment



Size of box ~ importnace of stressor to lifestage

Change in stressor due to covered activity